

REMARKS

Claims 4 and 6-8 currently appear in this application. The Office Action of September 26, 2007, has been carefully studied. These claims define novel and unobvious subject matter under Sections 102 and 103 of 35 U.S.C., and therefore should be allowed. Applicant respectfully requests favorable reconsideration, entry of the present amendment, and formal allowance of the claims.

Amendment

Claim 5 has been cancelled and the limitations thereof inserted into claim 4.

Election/Restrictions

Election was made without traverse of claims 4-7. Claims 1-3 and 8 are therefore withdrawn.

Priority

It is noted that applicant has not submitted an English translation of Japanese 2003-314662, filed September 5, 2003. Accordingly, for prior art purposes, the filing date of the PCT application, September 6, 2004, is considered as the priority date of the instant application.

Art Rejections

Claims 4 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Larsson et al., (1994) *JACS* **116**:8459-8465.

This rejection is respectfully traversed. Claim 4 has been amended to recite the limitations of claim 5, which is not anticipated by Larsson. Accordingly, claims 4 and 7 are now allowable.

Claims 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable Over Larsson further in view of Juarranz et al., (1996) *Journal of Microscopy* **vol. 182, Pt. 1**:46-49.

This rejection is respectfully traversed. The Examiner concedes that Larsson et al. teach the method of claim 4 but do not teach the method in which the cationic dye compound is represented by formula (I). In addition to this difference, there is a further difference between the presently claimed method and that disclosed by Larsson. In fact, Larsson does not describe a method for detecting a hybrid nucleic acid using a cationic dye compound and circular dichroism (CD). Larsson merely measures the CD spectrum of YOYO-DNA complex, and does not describe a stable and accurate detection of a hybrid nucleic acid by use of a cationic dye compound.

Conventionally, some cationic dye compounds are used for fluorescence detection of DNA, since such compounds can be intercalated into the DNA to produce fluorescence. However, there is a technical difficulty in using such dye compounds in circular dichroism measurements, because the intercalation impairs the structural stability of the dye compound/nucleic acid complex, which results in unstable and inaccurate circular dichroism detection of the hybrid nucleic acid. This technical difficulty is confirmed by the description in Larsson and in the present specification.

Larsson states in the abstract, lines 5-6, "This conclusion is supported by the induced negative circular dichroism (CD), the transfer of energy from the DNA bases to the bound YOYO, and the unwinding of supercoiled DNA by YOYO."

The present specification at page 14, lines 6-9, notes, "Such an intercalation between base pairs will be a factor impeding the detection of the circular dichroism of the chromophore X, so that it may be preferred for the connection group Y to have such a structure."

In view of the above-described technical difficulty in completing the presently claimed method using CD, it is highly preferred to use a cationic dye compound that does not intercalate with a hybrid nucleic acid to be detected. Thus, the cationic dye compound as claimed herein helically covers

the periphery of the nucleic acid as a core (please refer to the specification from page 16, line 16 to page 17, line 15). In other words, the cationic dye compound specified in amended claim 4 can bind with a hybrid nucleic acid in a mode other than intercalation, and is suitable for stable and accurate CD detection of the hybrid nucleic acid.

Larsson merely relates to a fluorescent dye that intercalates into DNA, and nowhere does Larsson describe a dye suitable for use in CD detection. Accordingly, one skilled in the art would not have easily conceived of the method as claimed herein based on Larsson.

Juarranz adds nothing to Larsson, because Juarranz also relates to a fluorescence method, and does not described CD detection and the technical problems involving CD detection. Therefore, there is no motivation to combine the teaching of Juarranz to that of Larsson.

Further, by using the cationic dye specifically recited in amended claim 4, the present method achieves a remarkable effect so that stable and accurate detection of a hybrid nucleic acid can be employed by measuring the circular dichroic spectrum. The method of Larsson et al cannot so reliably measure DNA because the cationic dye used in Larsson intercalates into the DNA and destabilizes the structure of

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the cationic dye/DNA complex, which impairs stable and accurate detection of the DNA.

In view of the above, it is respectfully submitted that the claims are now in condition for allowance, and favorable action thereon is earnestly solicited.

Respectfully submitted,

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